FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

September 24 to October 7, 2017 (Weeks 39-40)

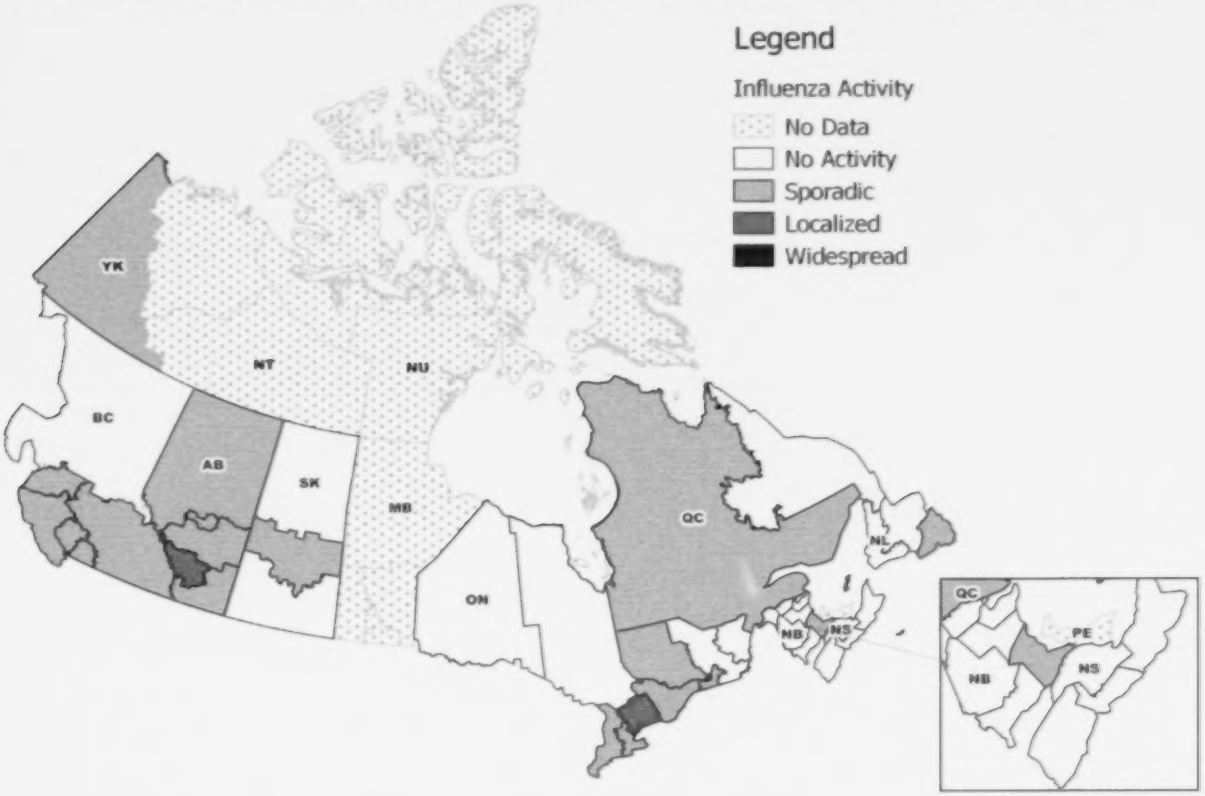
Overall Summary

- Influenza activity remains at interseasonal levels across the country.
- The percentage of laboratory tests positive for influenza remains higher for this time of year compared to previous seasons. The majority of influenza detections continue to be A(H3N2).
- Slightly more influenza-related hospitalizations have been reported by participating provinces and territories. However, the levels of primary care consultations for ILI, influenza and ILI outbreaks, and paediatric hospitalizations are within expected levels.
- For more information on the flu, see our Flu(influenza) web page.

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In weeks 39-40, approximately half of regions in reporting provinces and territories indicated some influenza or influenza-like illness activity. In week 40, two regions (one in Alberta and one in Ontario) reported localized activity, and 20 regions (British Columbia (4), Alberta (4), Saskatchewan (1), Ontario (4), Quebec (4), New Brunswick (1), Newfoundland (1) and Yukon (1)) reported sporadic activity. Consistent with the increased number of influenza detections this season, a greater number of regions are reporting sporadic activity compared to previous seasons.

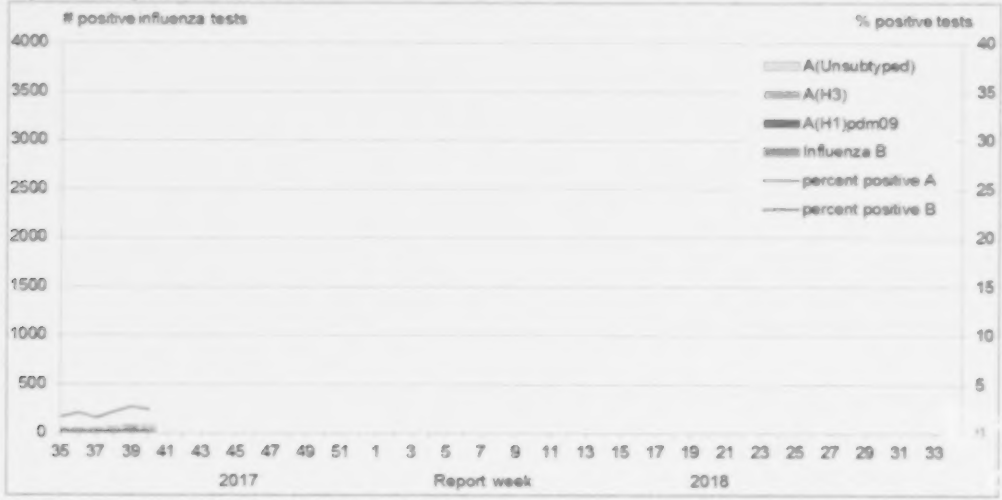
Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, 2017-18, Week 40



Laboratory-Confirmed Influenza Detections

In weeks 39-40, the number of tests positive for influenza remained at interseasonal levels. The percentage of tests positive was low and increased only slightly compared to the previous 2-week period (2.6% in week 40). The number and percentage of influenza A tests positive remains higher for this time of year than was observed during the previous seven seasons. Influenza B detections remain low and in keeping with previous seasons. For data on other respiratory virus detections, see the Respiratory Virus Detections in Canada Report.

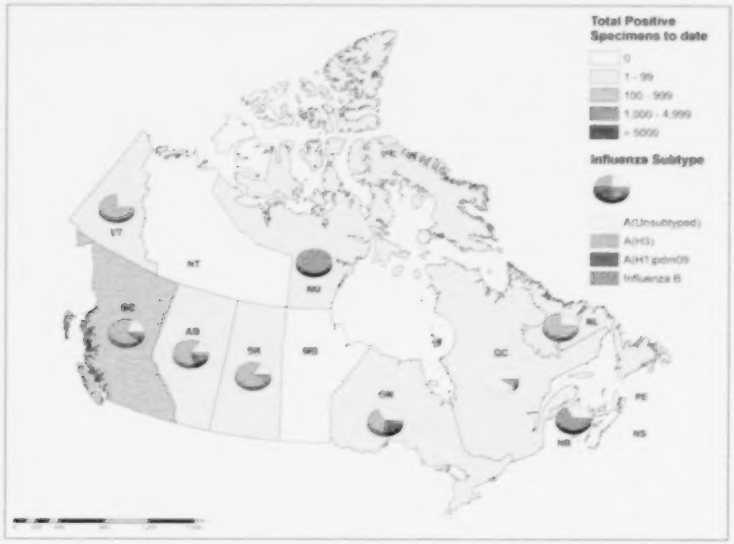
Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2017-18, weeks 35 to 40



The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of seasonal influenza activity.

To date this season, 330 laboratory-confirmed influenza detections have been reported, of which 91% have been influenza A. Influenza A(H3N2) has been the most common subtype detected this season, representing 88% of subtyped influenza A detections. Detections from BC and AB represent 64% of the cases reported in this 2-week period, with a further 31% from Ontario and Quebec. For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report.

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2017-18, weeks 35 to 40



To date this season, detailed information on age and type/subtype has been received for more than 187 laboratory-confirmed influenza cases (Table 1). Based on the limited data to date, among influenza cases with reported age and type/subtype information, the majority of cases have been reported in adults aged 45-64 years of age (25%) and 65 years and older (49%).

Table 1 – Cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting, Canada, 2017-18, weeks 35 to 40

Age groups (years)	Cumulative (August 27 to October 7, 2017)						
	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[1]	Total	#	%
0-4	10	<5	6	<5	<5	12	6%
5-19	6	0	<5	<5	<5	8	4%
20-44	26	0	14	12	<5	29	15%
45-64	>42	<5	23	19	<5	48	25%
65+	>89	<5	69	20	5	>94	49%
Total	>171	<5	115	56	16	>187	100%

[1]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available;
x - Supressed to prevent residual disclosure

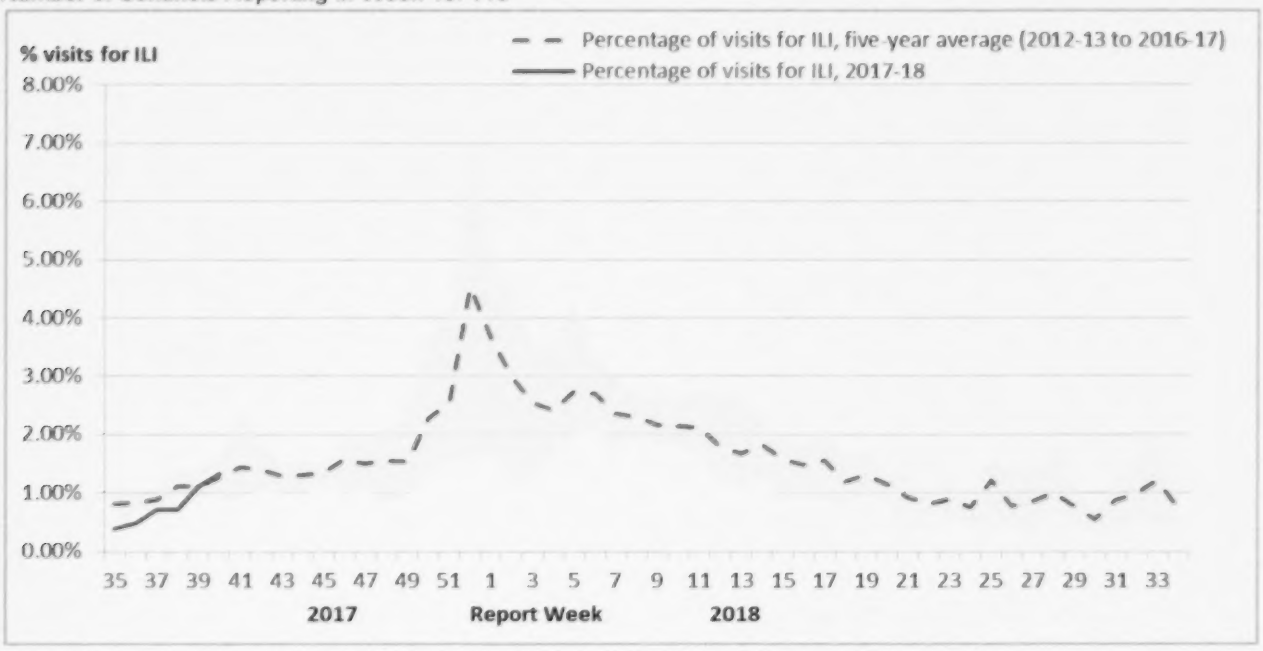
Syndromic / Influenza-like Illness Surveillance

Healthcare Practitioners Sentinel Syndromic Surveillance

In week 40, 1.3% of visits to healthcare professionals were due to influenza-like illness, which is increased slightly compared to the previous 2-week period and in keeping with previous seasonal levels.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2017-18, weeks 35 to 40

Number of Sentinels Reporting in Week 40: 118



The shaded area represents the maximum and minimum percentage of visits for ILI reported by week from seasons 2012-13 to 2016-17

Participatory Syndromic Surveillance

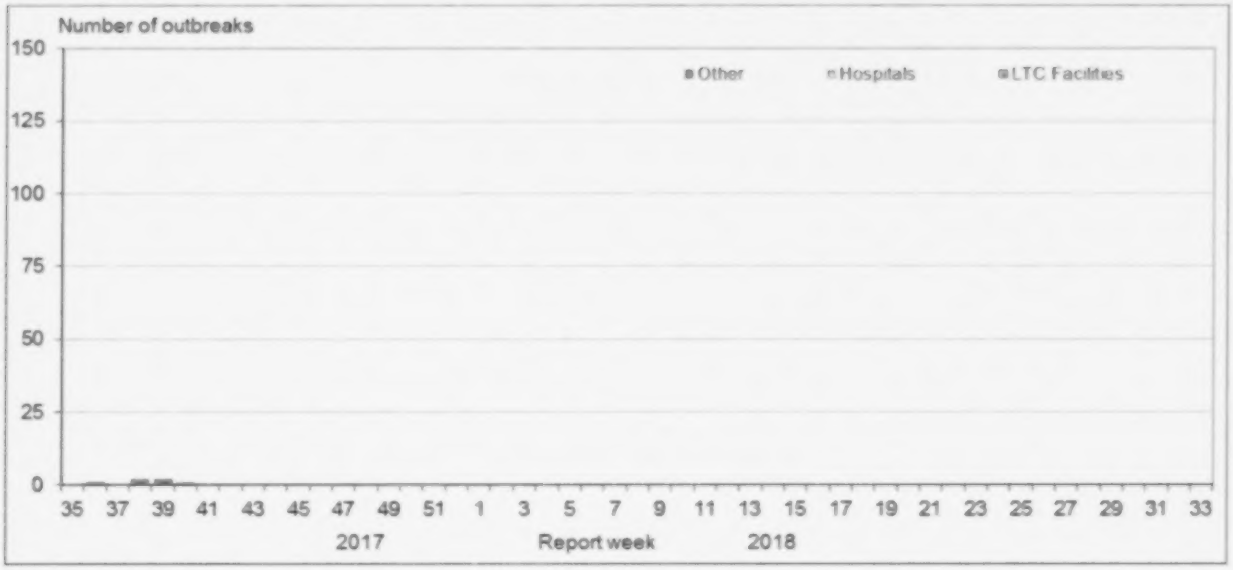
FluWatchers is a participatory ILI surveillance system that relies on weekly voluntary submissions of syndromic information from the Canadians across Canada.

The 2017-18 FluWatchers reporting season began October 1st, 2017 (week 40). Data will be included in the FluWatch report for week 41.

Influenza Outbreak Surveillance

In weeks 39-40, three new laboratory-confirmed influenza outbreaks were reported, one in a long-term care facility, one in a hospital and one in another setting. In addition, two ILI outbreaks were reported in schools.

Figure 6 – Number of new outbreaks of laboratory-confirmed influenza by report week, Canada, 2017-18, weeks 35 to 40



Severe Outcomes Influenza Surveillance

Provincial/Territorial Influenza Hospitalizations and Deaths

In weeks 39-40, 18 influenza-associated hospitalizations were reported by participating provinces and territories[1].

To date this season, 29 influenza-associated hospitalizations have been reported, 28 of which were associated with influenza A, and 16 (55%) cases were in adults 65 years of age or older. Although the number of cases is still small, it is slightly higher than reported in previous seasons.

[1]Influenza-associated hospitalizations are reported by NL, PE, NS, NB, MB, AB, YT and NT. Only hospitalizations that require intensive medical care are reported by SK.

Pediatric Influenza Hospitalizations and Deaths

To date this season, five laboratory-confirmed influenza-associated pediatric (≤16 years of age) hospitalizations have been reported by the Immunization Monitoring Program Active (IMPACT) network, all of which were associated with influenza A.

Influenza Strain Characterizations

During the 2017-18 influenza season, the National Microbiology Laboratory (NML) has characterized 21 influenza viruses [12 A(H3N2), 5 A(H1N1)pdm09 and 4 B viruses] that were received from Canadian laboratories.

Antigenic Characterization

Table 2 – Influenza antigenic strain characterizations, Canada, 2017-18 weeks 35-40

Strain Characterization Results	Count	Description
Influenza A (H3N2)		
A/Hong Kong/4801/2014-like	4	Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2017-18 Northern Hemisphere's **trivalent** and **quadrivalent** vaccine.
Influenza A (H1N1)		
A/Michigan/45/2015-like	5	Viruses antigenically similar to A/Michigan/45/2015, the A(H1N1) component of the 2017-18 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
Influenza B		
B/Brisbane/60/2008-like (Victoria lineage)	0	Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2017-18 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
B/Phuket/3073/2013-like (Yamagata lineage)	4	Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2017-18 Northern Hemisphere **quadrivalent** influenza vaccine.

Genetic Characterization of A(H3N2) viruses

During the 2017-18 season, eight A(H3N2) viruses did not grow to sufficient titers for antigenic characterization by HI assay. Therefore, genetic characterization was performed to determine to which genetic group they belong. All eight A(H3N2) viruses belonged to the same genetic group as the vaccine strain, A/Hong Kong/4801/2014 (group 3C.2a).

Of the four influenza A (H3N2) viruses that were characterized antigenically as similar to A/Hong Kong/4801/2014, three belonged to genetic group 3C.2a and sequencing is pending for the remaining isolate.

Antiviral Resistance

During the 2017-18 season, the National Microbiology Laboratory (NML) has tested 23 influenza viruses for resistance to oseltamivir and zanamivir, and all viruses were sensitive (Table 3).

Table 3 – Antiviral resistance by influenza virus type and subtype, Canada, 2017-18 weeks 35-40

Virus type and subtype	Oseltamivir		Zanamivir	
	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	14	0 (0%)	14	0 (0%)
A (H1N1)	5	0 (0%)	5	0 (0%)
B	4	0 (0%)	4	0 (0%)
TOTAL	23	0 (0%)	23	0 (0%)

Note: Since the 2009 pandemic, all circulating influenza A viruses have been resistant to amantadine, and it is therefore not currently recommended for use in the treatment of influenza. During the 2017-18 season, the subset of influenza A viruses that were tested for resistance to amantadine were resistant.

Provincial and International Influenza Reports

- Alberta – Influenza Surveillance Report
- British Columbia – Influenza Surveillance
- Manitoba - Manitoba – Seasonal Influenza Reports
- New Brunswick – Influenza Surveillance Reports
- Newfoundland and Labrador – Surveillance and Disease Reports
- Nova Scotia – Respiratory Watch Report
- Ontario – Respiratory Pathogen Bulletin
- Prince Edward Island – Influenza Summary
- Saskatchewan – Influenza Reports
- Québec – Flash Grippe
- Australia – Influenza Surveillance Report
- European Centre for Disease Prevention and Control – Surveillance reports and disease data on seasonal influenza
- New Zealand – Influenza Weekly Update
- Public Health England – Weekly national flu reports
- Pan-American Health Organization – Influenza Situation Report
- United States Centres for Disease Control and Prevention – Weekly Influenza Surveillance Report
- World Health Organization – Influenza update
- World Health Organization – FluNet

FluWatch Surveillance for the 2017-2018 Season – Notes and Definitions

The FluWatch report is compiled from a number of data sources. Surveillance information contained in this report is a reflection of the surveillance data available to FluWatch at the time of production. Delays in reporting of data may cause data to change retrospectively

Influenza/influenza-like illness (ILI) Activity

Influenza/ILI activity levels, as represented on the map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, primary care consultations for ILI and reported outbreaks. ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls, and the detemination of an increase is based on the assessment of the provincial/territorial epidemiologist. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Influenza/ILI Activity Level definitions

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* ; (2) lab confirmed influenza detection(s); (3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*; (2) lab confirmed influenza detection(s);(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†;

* More than just sporadic as determined by the provincial/territorial epidemiologist.

†Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist

Laboratory-Confirmed Influenza Detections

Provincial, regional and some hospital laboratories report the weekly number of tests and detections of influenza and other respiratory viruses. Provincial public health laboratories submit demographic information for cases of influenza. This case-level data represents a subset of influenza detections reported through aggregate reporting. Specimens from NT, YT, and NU are sent to reference laboratories in the provinces for testing.

Syndromic/Influenza-like Illness Surveillance

FluWatch maintains a network of primary care practitioners who report the weekly proportion of ILI cases seen in their practice. Independent sentinel networks in BC, AB, and SK compile their data for reporting to FluWatch. Not all sentinel physicians report every week.

Definition of Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5 years of age, gastrointestinal symptoms may also be present. In patients under 5 or 65 years and older, fever may not be prominent.

Influenza Outbreak Surveillance

Outbreaks of influenza or ILI are reported from all provinces and territories, according to the definitions below. However, reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions. All provinces and territories with the exception of NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals.

Outbreak definitions:

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory-confirmed case of influenza. Residential institutions include but are not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory-confirmed case of influenza; i.e. closed communities.

Serious Outcome Influenza Surveillance

Provincial/Territorial Influenza Hospitalizations and Deaths

Influenza-associated hospitalizations and deaths are reported by 8 Provincial and Territorial Ministries of Health (excluding BC, NU, ON and QC). The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Only hospitalizations that require intensive medical care are reported by SK.

Due to changes in participating provinces and territories, comparisons to previous years should be done with caution.

Pediatric Influenza Hospitalizations and Deaths

The Immunization Monitoring Program Active (IMPACT) network reports the weekly number of hospitalizations with influenza among children admitted to one of the 12 participating paediatric hospitals in 8 provinces. These represent a subset of all influenza-associated pediatric hospitalizations in Canada.

Influenza Strain Characterizations and Antiviral Resistance

Provincial public health laboratories send a subset of influenza virus isolates to the National Microbiology Laboratory for strain characterization and antiviral resistance. These represent a subset of all influenza detections in Canada and the proportion of isolates of each type and subtype is not necessarily representative of circulating viruses.

Antigenic strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by WHO. Genetic strain characterization data are based on analysis of the sequence of the viral hemagglutinin (HA) gene.

Antiviral resistance testing is conducted by phenotypic and genotypic methods on influenza virus isolates submitted to the National Microbiology Laboratory. All isolates are tested for oseltamivir and zanamivir and a subset are tested for resistance to amantadine.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

This report is available on the Government of Canada Influenza webpage.
Ce rapport est disponible dans les deux langues officielles.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.